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Outdoor Environmental Supportiveness and Older People's Quality of Life: A Personal Projects Approach

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ABSTRACT

We present an approach to exploring the role of environmental supportiveness in contributing to older people's quality of life (QoL), based on Little's ecological model (2010) in which individual and situational factors influence the personal projects of salience to individuals. Personal projects are self-generated and purpose-oriented activities or goals in which an individual is engaged (Little, 1983). The efficacy with which the pursuit of these activities is achieved depends on the nature of the project and the degree to which it is supported by external factors such as the environment. We explore the relationship between the outdoor environment and QoL, drawing on the concept of "environmental support" as presented by Sugiyama and Ward Thompson (2007a). There is a positive relationship between the number of outdoor personal projects older people participated in and measures indicative of their QoL. The relationship between perceived environmental support and QoL measures was significant in projects involving nature but not for other project types.

KEYWORDS

personal projects; outdoor activity; quality of life; elderly

Introduction

In an aging society, maintaining mobility and being able to undertake desired activities in later life are recognized as important aspects of quality of life (QoL) and independent living (Mollenkopf, Hieber, & Wahl, 2011; Ziegler & Schwanen, 2011). If individuals can maintain independence and mobility into later life, the burden of ill health on health-care systems can be reduced. Because of this, there is considerable interest in environments and behavior associated with active lifestyles.

Various social-ecological theories and models (Sallis & Owen, 2002; Barton & Grant, 2006) have proposed general ways for thinking about the relationship between the individual, their environment, and their behavior. In the context of

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their use in public health, there is a recognition that individual characteristics and preferences are active at different scales, from household and community to wider geographic levels (Bandura,1989; Barton & Grant, 2006).

In addition, Lawton and Nahemow's (1973) ecological model of aging introduced the concept of environmental press, the differential effect of the environment on behavior relating to the capabilities and characteristics of the individual (Bonnes & Secchiaroli, 1995). According to this, aspects of the built environment may not be a "problem" per se, but, depending on the capabilities of the individual, may present one or more problems (Iwarrson, 2005).

Methods for studying this relationship have largely focused on neighborhood-level environmental and behavior measures (Bull, Giles-Corti, & Wood, 2010; Sallis, 2009); there are few tools that effectively gather data in ways sensitive to the quality of the physical environment relevant to each individual and their desired activities (Sugiyama & Ward Thompson, 2007c). Of course the activities that are meaningful and desirable vary from one person to another and, in addition, the capabilities of an individual to pursue activities in different environments often become restricted with age (Iwarsson, 2005), and may vary in idiosyncratic ways.

Working within such social-ecological understandings, the studies presented here draw on the concept of "person-environment fit" (Kahana, Lovegreen, Kahana, & Kahana, 2003) or "environmental support" (Brown & Werner, 2012; Sugiyama & Ward Thompson, 2007a, 2007c). This considers an individual's activity as a product of the interaction between what environments offer and what individuals want or need to do; it encompasses factors that can serve either as facilitators or barriers in the realization of a person's wants and needs, and recognizes that the match between the two has consequences for QoL.

Although relationships between outdoor activity, especially in natural environments, and quality of life have long been researched, robust evidence to support contemporary policy demands in the context of an aging society is lacking (Ward Thompson, 2011). Researching which aspects of the outdoor environment help maintain and support outdoor activity in old age is therefore important for informing policy and practice in designing liveable outdoor environments that can contribute to older people's QoL.

Background

This article describes the use of personal projects as a tool to elicit activities salient to the individual (Little, 2010) and assesses the perceived supportiveness of the outdoor environment for undertaking these activities. While the use of personal projects as a tool in understanding the relationship between environmental support and well-being has been established (Sugiyama & Ward Thompson, 2007a, 2007b; Wallenius, 1999), the current studies explore this further. In particular, the focus here is on the role of different *types* of projects that take people outdoors and how the total number of outdoor projects and environmental supportiveness of different project types can contribute to life satisfaction.

Personal projects are units of analysis used in understanding a person in their social, physical, and temporal context (Little, 1983). Individuals are asked to describe projects in which they are currently engaged; the units of analysis are thus projects related to activities that are salient to individuals. Although originally developed for use in personality psychology, personal projects have subsequently been used to explore outdoor activity in the context of the environment. Wallenius (1999) used personal projects to investigate the relationship between supportiveness of the environment and psychological well-being. Roe and Aspinall (2012) used personal projects analysis to understand activities of importance in supporting the well-being of adolescents. We are interested in the relationship between perceived environmental supportiveness for projects undertaken by older adults and their QoL.

QoL measures can involve both independent measures (health and functioning) and self-report (satisfaction with life) measurements (Kahn & Juster, 2002). Measures of satisfaction with life or perceived well-being as domains of QoL widely used in the literature include those developed by Diener, Emmons, Larsen, and Griffin (1985) and Hyde, Wiggins, Higgs, and Blane (2003), and relate to contemporary interest in measures not just of physical health but also of mental well-being and, ultimately, human flourishing (Netuveli, Pikhart, Bobak, & Blane, 2012; Ryan & Deci, 2001). In our studies we have focused on self-rated life satisfaction and needs satisfaction as the components of QoL that are most relevant to a study of perceived environmental support for personally salient activities.

Environmental supportiveness is most closely related to QoL through the notion of project efficacy (Little, 1983)—that is, to the role of the environment in enabling or inhibiting an individual's ability to carry out a project. By gathering data based on the concept of environmental support for activities salient to individuals, we can focus on how the environment enhances (or detracts from) QoL via participation in outdoor activities that matter to the individual.

Different classification schemes can be applied to personal projects dependent on the purpose of the research, including content focus, time frame, resource ecology, and morphological pattern (Little, 1983). In our research we were interested in the different ways that undertaking outdoor activities might impact on QoL. Forsyth, Oakes, Lee & Schmitz (2009) investigated whether the environment played a greater or lesser role in encouraging physical activity and whether the environment was more important to some groups of people than others in influencing physical activity, concluding that the environment was more likely to influence walking behavior for those who are less healthy (including obese), unemployed, or retired.

This suggests the potential importance of the environment for activities that take people outdoors among a retired, and therefore predominantly, elderly population. Further to this, Sugiyama and Ward Thompson (2007b) posited that the environment will play a greater or lesser role in getting outdoors and in the relationship between the environment and quality of life, depending upon the type and purpose of activity being undertaken.

Based on this, our studies set out to gather and classify outdoor activities, based on personal projects, given that the type and purpose of activity being undertaken

might moderate the relationship between environmental supportiveness and quality of life. The principal benefits identified in the literature that older people derive from getting outdoors relate to engagement with nature (including mental relief and aesthetic enjoyment), opportunities for social contact and engagement, and opportunities for physical exercise or to engage in leisure activities outside the home (Alves & Sugiyama, 2006). Nature and social support are found to mitigate stress (Fan, Das, & Chen, 2011) and relieve symptoms of poor health (Korpela & Ylén, 2007). These are benefits beyond those associated with utilitarian needs involving day-to-day tasks such as shopping.

Research aims

The focus of this article is to identify the extent to which involvement in, and perceived supportiveness of, the environment for *different types* of outdoor personal project contribute to quality of life.

Based on an initial screening of outdoor personal projects listed by our participants (data collection is described in the Method section), we devised a categorization based on the principal activity being undertaken in each project and classified personal projects into nature-related, other recreational, people-related, and utilitarian. We surmised that utilitarian projects (by definition done out of necessity or obligation) would differ from the other three categories, which involve optional and desirable projects; as others have noted, environmental support might matter less for functional journeys (Brown & Werner, 2012). We also surmised that those who were engaged in a greater number and variety of outdoor projects would be more healthy, active, and socially engaged than those in poorer health or who are less able to get out and about. Given that health, physical activity, and social contact are core components of many QoL measures, we hypothesized that those who were engaged in more projects would also have a better self-reported QoL. Our hypotheses therefore were as follows:

- the greater the total number of projects a person identifies, the higher his or her QoL;
- the relationship between engagement in utilitarian projects and QoL will differ from that of other project categories;
- the more supportive the environment for each type of personal project,, the higher a person's QoL will be.

Method

This section details the two studies we draw upon in this article and describes the methodological tools adopted in each.

Details and locations of studies

The research reported in this article draws upon results of two surveys undertaken to explore relationships between the environment and older people's QoL. The

first, part of the Inclusive Design for Getting Outdoors (I'DGO) project (Study 1), was undertaken during 2004 and comprised postal, self-completion surveys across twenty local authority areas in the United Kingdom, selected to be diverse in terms of geographical location, rurality, types of employment, and indices of multiple deprivation.

A further survey, part of the I'DGO TOO[1] study, (Study 2), undertaken in 2008, focused on neighborhoods where environmental interventions were due to take place. In this case, face-to-face interviews were conducted across nine neighborhoods with 86 individuals living in streets which were due to undergo redesign or nearby streets used as control streets. Our sample came from nine different UK locations: Islington and Hackney, in London; Torquay; Oxford; Manchester; Sheffield; Edinburgh; Bridgend; and Port Talbot.

The analysis in this article is based on the data from the initial I'DGO study (Study 1) and the first stage of the second study, I'DGO TOO (Study 2).

Sampling strategy

The sample frame for Study 1 was an initial mailing of 1,818 questionnaires to older people, supplemented by targeted sampling of older people in sheltered housing and those from ethnic minority backgrounds, in order to ensure the sample included these groups that are often harder to reach. In total 320 valid responses were received from participants aged between 65 and 96 ($M = 75$, $SD = 7.23$).

In Study 2, locations for sampling were residential streets chosen based on the likelihood of being targets for street improvement projects planned for 2009, subsequent to our survey.

Within each street identified for survey, an attempt was made to contact and invite every resident aged 65 years or more to participate in the survey. Recruitment methods included door-to-door leafleting and engagement with community groups and facilitators. The response rate to direct requests to participate was in the order of 50%. Questionnaires were administered by interview in participants' homes. In total 86 interviews were completed from participants aged between 64 and 95 ($M = 75$, $SD = 7.20$).

Measurement tools

The outcome of interest in this article is self-rated life satisfaction as an important component of QoL. We measured life satisfaction using a Satisfaction with Life Scale (SWLS) (Diener et al., 1985) in Study 1. The SWLS is a 5-itemscale, with each item rated on a 7-point scale. In Study 2 we used a more detailed measure with a focus on elderly populations, which was developed after the first study's research methods were determined: the CASP-19 scale (Hyde et al., 2003). The CASP-19 scale is designed as a needs satisfaction measure of QoL in elderly populations; it

[1]See http://www.idgo.ac.uk/ for further information on the project.

is a 19-item scale based on four domains: Control, Autonomy, Self-Realization and Pleasure (CASP).

Functional status was measured using an instrumental activities of daily living (IADL) scale, adapted from Jette et al. (1986). We assessed level of difficulty (on a scale of *not difficult at all* to *very difficult*) against four basic sensory-motor functions (seeing, hearing, remembering things, and getting around), and six activities focused on day-to-day activity, on a scale of *not hard at all* to *too hard to do* (walking, climbing stairs, housework, errands, using public transport, and moderate physical activity). In Study 2 we asked about "seeing for getting around" and "seeing for reading" separately to improve on this measure for practical purposes (Aspinall et al., 2007). Age and functional status are controlled for in our analyses reported here.

Identification of personal projects (Little, 1983) was used as a tool to establish projects that involved the participants in outdoor activities. Participants were asked to detail activities they were engaged with that involved leaving the house and going outside. These were elicited by asking each participant to identify the activity undertaken and the place where it was undertaken, for up to five projects that involved going outdoors. "Just going for a walk" was included as final project for all participants. Participants were then asked to rate each project on three dimensions:

1. how easy/difficult the environment made it to carry out the project;
2. how important the project was to them;
3. how enjoyable it was to them.

The use of personal projects as a tool to capture the activities undertaken by respondents offers benefits in terms of asking about activities of salience to the respondents. What it does not do is capture activities that may not be undertaken (perhaps due to an unsupportive environment). For this reason, participants were also asked to detail projects they did not currently do but used to do or would like to do.

As explained in the Background section, and based on the literature and an initial screening of personal projects listed by our participants, projects were classified into four, high-level types according to their principal purpose in relation to different aspects of QoL, each with a number of subcategories as shown in Table 1. The examples given in Table 1 are typical examples of outdoor personal projects elicited from our respondents.

Any such categorization of open responses is potentially open to bias in coding. We attempted to reduce any such bias by having two different researchers undertake the coding separately and discussing any disparities arising among members of the research team to ensure consistent decisions. There is potential overlap between categories; for example, "taking the grandchildren to the park" is engagement with nature and with people, and possibly utilitarian if looking after the grandchildren is seen as a chore or responsibility rather than a recreational activity. In such cases, the project was coded according to what was deemed to be the primary purpose of the trip based on the way in which the personal project had been described. For example, if the activity was "playing with grandchildren" and the location was the park, the activity would be coded as "People"; however if the activity was "going to the park" and the place was "where grandchildren live" it would be coded as "Nature."

Table 1. Classification of personal projects.

Personal Project Category	Examples of Activities
Engagement with Nature	
Gardening	Pottering in the garden; cutting the grass; tending to window boxes
Relaxation-related activities	Relaxing/reading/sleeping in the garden; sitting in the park; sitting in fresh air; sitting/knitting in the garden
Walking in nature	Walk in the park; walk on the beach; walk in the hills
Engagement with People	
Participating in Meetings	Attending community meetings; serving as community spokesperson; attending ladies' clubs
Meeting People	Meeting and visiting people, friends, and relatives; playing with grandchildren
Recreation and Exercise	
Doing Sports	Swimming, tennis, gym, bike riding, playing games
Trips for Leisure Activities	Going to the library, museum, or cinema, going to the pub, eating out
Walking (Not in Nature)	Walking around the local area; walking the dog; walking as mode of transport
Utilitarian	
Utilitarian Trips	Going to church; going to the doctor; shopping; going to town
Housework	Washing car; hanging out washing; cleaning windows

Analysis

We present the results below for each study separately, showing the relationship between QoL and the number and type of personal projects each participant engaged in, before exploring the role of a supportive environment in mediating the relationship between outdoor personal projects and QoL. Rather than drawing direct comparisons between the two studies, the aim is to verify and/or strengthen any conclusions that can be drawn from each study.

An overall supportiveness of the neighborhood environment (SNE) score for each participant was calculated using the difficult/easiness ratings weighted by the importance of each project, based on a simplified version of Wallenius's approach (1999) and following Sugiyama and Ward Thompson (2007b). Respondents were asked how easy or difficult the outdoor environment made it for them to undertake each of the personal projects they described. Therefore our measure of environmental support is based on participants' perceived ease of undertaking salient outdoor personal projects, weighted by the importance of each project. A difficult and important project is therefore less supportive than a difficult and less important project, in order that we do not assume a difficult project will negatively impact QoL if it is not so important to the individual.Five variables were derived: a weighted mean of SNE for all projects undertaken by a participant, and an SNE score for each of the four project types based on the most important project of a particular type (e.g., utilitarian projects), as identified by each participant (see Table 1).

Results

In both studies the mean age of respondents was 75 (Table 2), and respondents were engaged on average in just over four personal projects. Study 1 had a slightly greater

Table 2. Sample characteristics.

	Study 1	Study 2
n	286	98
Mean age (*SD*)	74.99 (7.23)	74.9 (7.2)
% female	61.1%	57.4%
Mean (*SD*) IADL	2.51 (1.31)	2.08 (0.86)
Mean (*SD*) QoL measure (SWLS in Study 1; CASP-19 in Study 2)	3.55 (0.98)	39.29 (9.44)
Mean (*SD*) no. personal projects	4.73 (2.23)	4.43 (1.39)
Mean (*SD*) SNE—all projects	15.73 (4.41)	16.73 (4.81)

Note. SD = Standard Deviation; IADL = Instrumental Activities of Daily Living Scale; SWLS = Satisfaction with Life Scale; CASP-19 = Control, Autonomy, Self Realization & Pleasure Scale; SNE = Supportiveness of the Neighbourhood Environment Scale

proportion of females, and respondents had slightly higher functional status (IADL) than in Study 2. The mean environmental supportiveness score is lower in Study 1.

Study 1: I'DGO

In Study 1, the mean number of personal projects respondents listed was 4.08. There is significant positive correlation, $r(262) = .159$, $p = .01$, between the number of outdoor activities undertaken and QoL as measured by the Satisfaction with Life Scale (SWLS). For each type of project, SWLS was compared for those who did or did not participate in a project of that type. In all cases except utilitarian projects, SWLS was higher for respondents involved in each particular type of project compared with those who were not. However, *t* tests for equality of means indicated that the difference is not significant in any case, although recreational projects, $t(308) = 1.87$, $p = .062$, are close to significance.

As for analysis of the supportiveness of the environment for different project types and its implications for SWLS, blocked linear regression models were estimated separately for the supportiveness of the environment for each type of project (Table 3).

In block 1, age and functional status (IADL) are both significant predictors of SWLS, with IADL the more significant. Note also that while the direction of the relation of age with SWLS is positive, IADL has a negative correlation with SWLS. After controlling for age and functional status, block 2 of the regression shows that

Table 3. Study 1: SNE scores predicting SWLS—After controlling for confounders.

	β	Model coefficients
Block 1		$r^2 = .196, F(3,141) = 11.429$
Age	.170*	
IADL	–.450**	
Block 2		
Projects involving contact with nature	.159*	$r^2 = .219, F(4,140) = 9.77$
Projects involving contact with people	.079	$r^2 = .201, F(4,102) = 6.4$
Recreational projects	.084	$r^2 = .201, F(4,106) = 6.65$
Utilitarian projects	.062	$r^2 = .199, F(4,154) = 9.55$
All projects	.208**	$r^2 = .226, F(4,244) = 17.78$

Note. SNE = Supportiveness of the Neighbourhood Environment Score; IADL = Instrumental Activities of Daily Living Score

*p < .05. ** p < .01.

a combined SNE score across all projects is a significant predictor of SWLS, while at the level of individual project types, SNE is only significant for nature-related projects.

In summary, the first hypothesis was confirmed, i.e. the greater the total number of outdoor projects a person identifies, the higher his or her SWLS. Engagement in projects of different types was not significantly related to SWLS. The third hypothesis, on a positive relationship between SNE and SWLS, was confirmed in general across all project types. However, this was not true for each individual project type, and the only specific category positively linked with SWLS involved nature-related projects.

The second hypothesis, indicating utilitarian projects would differ from nonutilitarian projects, was not confirmed: there was a negative relationship between being involved in utilitarian type projects and SWLS, unlike with other types of projects, but none of these relationships were statistically significant. With regard to the SNE for utilitarian projects, such projects are likely to overlap with items on the IADL scale. As a consequence, the presence of IADL in block 1 may well reduce the chance of personal projects appearing significant in block 2 of the regression relating SNE to SWLS.

Study 2: I'DGO TOO

In Study 2, the mean number of projects was 4.43. There is significant positive correlation, $r(147) = .240$, $p = .017$, between the number of projects an individual is involved in and his or her overall QoL as measured by CASP-19. Furthermore, there are interesting relationships between the *type* of projects and CASP-19. Both the proportion, $r(136) = -.416$, $p < .01$, and number, $r(136) = -213$, $p = .043$, of an individual's projects that were utilitarian shows significant negative correlation with CASP-19. Table 4 shows the mean CASP-19 score for those who did or did not report each type of project. The *t* tests show significant difference between CASP-19 scores for those who did or did not take part in a nature project, such that those who had

Table 4. Study 2: Life satisfaction (CASP-19) scores for those with and without personal projects of each type.

	n	CASP-19 score	*t*
Project involving contact with nature			
No such project	42	36.57	
Have one or more such project	60	41.20	2.38*
Project involving contact with people			
No such project	51	38.80	
Have one or more such project	51	39.78	0.599
Recreational projects			
No such project	29	36.90	
Have one or more such project	73	40.25	1.99
Utilitarian projects			
No such project	12	41.50	
Have one or more such project	90	39	−0.287

*$p < .05$. **$p < .01$.

Table 5. Study 2: SNE scores predicting QoL—after controlling for confounders.

	β	Model coefficients
Block 1		$r^2 = .385, F(3,55) = 11.455$
Age	−.050	
IADL	−.563**	
Block 2		
Project involving contact with nature	.244*	$r^2 = .441, F(4,54) = 10.657$
Project involving contact with people	.304	$r^2 = .409, F(4,44) = 7.611$
Recreational projects	.183 ($p = .07$)	$r^2 = .415, F(3,66) = 11.505$
Utilitarian projects	−.043	$r^2 = .386, F(4,84) = 13.211$
All projects	.226	$r^2 = .397, F(4,92) = 15.116$

Note. SNE = Supportiveness of the Neighbourhood Environment Score; IADL = Instrumental Activities of Daily Living Score
*$p < .05$. **$p < .01$.

at least one nature project had a greater CASP-19 than those who did not engage in a nature-related project. For other project types, the difference in CASP-19 was not significant.

As with the Study 1 data, the supportiveness of the environment (SNE) for projects of different types was tested as a predictor of CASP-19. Table 5 presents blocked linear regressions undertaken, as before, to control for age and IADL and examine the impact of SNE for personal projects on CASP-19 over and above these potentially confounding variables. In block 1, IADL was again significant and negatively related to CASP-19. After controlling for age and functional status, positive relationships between SNE and life satisfaction were found for all types of projects except utilitarian, and for overall SNE of all projects. The relationships were significant only for nature projects, and recreational projects approached significance ($p = .07$).

In summary, in Study 2, as before, the first hypothesis was confirmed, i.e., the greater the total number of projects a person identifies, the higher his or her CASP-19. In addition, both the proportion and number of an individual's projects that were utilitarian showed significant negative correlation with CASP-19, supporting the second hypothesis and reflecting the (nonsignificant) pattern found in Study 1. The significant difference in CASP-19 between those who did (higher CASP-19) or did not take part in a nature project, compared with no significance for other project types, is counter to the second hypothesis. With regard to the third hypothesis on the supportiveness of the environment for different project types, positive relationships between SNE and CASP-19 were only significant for nature-based projects, although they approached significance for recreational projects. These findings suggest that nature-related projects, and SNE for nature-related projects, have a distinctive relationship with CASP-19.

Discussion

Both studies suggest a positive correlational relationship between self-rated aspects of QoL and the number of outdoor personal projects undertaken, which supports findings from Wallenius (1999), who found correlations between the number of

places visited by older adults and life satisfaction. As indicated earlier, it might be expected that there is a relationship between the number of personal projects recorded and QoL, either because those who get out more often are therefore more satisfied with life, or because having a greater QoL motivates one to get out and do more.

In Study 2 we found a significant negative relationship between the number and proportion of an individual's projects that were utilitarian and his or her QoL. While there were no statistically significant differences in QoL for those involved in utilitarian projects compared with those who were not, it is interesting to note that in both studies overall QoL was lower for those involved in at least one utilitarian-related project, compared to those who were not. This is the reverse of the relationship between QoL and other types of outdoor personal projects in our study. While it might be expected that utilitarian projects are necessary rather than enjoyable, it is perhaps surprising that those who do not undertake utilitarian projects have a higher QoL. Given that the majority (90%) of respondents were involved in a utilitarian project, not participating might suggest an inability to do so, and being unable to do day-to-day utilitarian tasks might be considered likely to be associated with lower QoL due to declining capabilities. However, the results here suggest that perhaps such projects may be seen as necessary chores, rather than enjoyable personal projects. This should be considered in future research that assumes that any kind of getting outdoors is positive for older populations. In fact, having to get out, in a potentially unsupportive environment, may have an adverse effect upon QoL.

For other project types, QoL was higher if an individual was involved in a project, compared to those who were not. Those involved in a nature-related project have a higher QoL in both studies, and the difference is significant in Study 2, as shown in Table 4.The evidence relating to being involved in projects or not and the number of projects with which an individual is involved adds to the body of research suggesting that older people who get out more have a higher QoL. However, the direction of this relationship cannot be certain. It might be that those older people with a better QoL are able to get out more, rather than getting out more leading to an improved QoL. Our finding relating to lower QoL associated with utilitarian projects might lend support to the view that *having* to go out can be associated with poorer QoL. Although being able to choose to go out and enjoy the environment might be associated with a better QoL, when such an outing becomes a chore rather than an enjoyable personal project, then QoL may in fact be lower.

Beyond considering simply the number of projects and involvement in projects or not, a principal focus of this article is to understand the role of a *supportive* outdoor environment in contributing to QoL, for different *types of activities or projects*. In order to do this we used the approach to measuring perceived environmental support conceptualized by Sugiyama and Ward Thompson (2007a). By categorizing the projects described by older people into four different types, we were able to calculate SNE scores for different types of outdoor activity and analyze this as a predictor of QoL using blocked linear regressions.

In both studies, functional status was the single most important predictor of QoL. This is to be expected, particularly in an elderly population. However, the perceived environmental supportiveness (of all projects) was significant over and above this (and taking age into account). Taking the weighted mean of SNE across all project types, the SNE was significant in explaining variation in QoL in Study 1 (and approached significance in Study 2), suggesting that perceived environmental support may be important regardless of the type of outdoor activity. QoL was higher for respondents who perceived the environment as more supportive, regardless of the type of activity being undertaken.

When we examined the contribution of SNE for different types of personal projects, perceived supportiveness for all types was positively associated with QoL in Study 1, and for all except utilitarian projects in Study 2. However, only SNE for nature-related projects was a significant predictor of variation in QoL, and this was found in both studies. This supports previous studies highlighting the influence of natural environment on well-being and QoL (Bowler, Buyung-Ali, Knight, & Pullin, 2010; Sugiyama, Ward Thompson, & Alves, 2009; Ward Thompson & Aspinall, 2011), but this article suggests that not only being involved in nature-related activities but having a supportive environment in which to do so is important.

Relationships between engagement in personal projects and QoL are to be expected (Lawton, Moss, Winter, & Hoffman, 2002) but this article shows that the perceived supportiveness and quality of the environment for undertaking outdoor personal projects may be as important as simply getting outdoors for enhancing one's quality of life. However, some types of project may not rely as much as others on a supportive environment. In our studies, SNE appears less important for undertaking social or recreational activities than for nature projects, where having a supportive environment, clearly linked to QoL, perhaps plays a stronger role in the ability to undertake the project. This may be because it is a more optional activity, not driven by other needs, such as social contact, and therefore the environment may play a greater role.

With regard to utilitarian projects, however, it seems that a supportive environment may mitigate the effects of restricted mobility or other items on the IADL scale and therefore, to some extent, may also mitigate any negative association between having to do utilitarian projects and QoL. For such types of projects, therefore, the lack of a significant association between SNE and QoL may reflect a more complicated underlying pathway of mediators, confounders, and suppressors of QoL. Further research is needed to tease apart these associations. Nonetheless, it seems important that the outdoor environment be designed so that it is perceived as supportive to older people for a range of activities.

We recognize several limitations in our studies as reported here. The analysis of personal projects is limited by the classification system used. We investigated the relationship between perceived environmental supportiveness and QoL for four different types of personal project: those taking place in nature; those involving contact with people; utilitarian projects; and recreational projects. Given the importance of

physical activity in contributing to health in later life, a possible alternative would be to categorize projects according to the level of activity involved, ideally based on independent measures of levels of physical activity.

The analysis is also limited by the fact that we used different measures for QoL: the Diener et al. (1985) Satisfaction with Life Scale in Study 1 and CASP-19 (Hyde et al., 2003) in Study 2. Despite this, we found some similar patterns in the data, improving the confidence with which we report our results as they are the same across two types of QoL measure. We also modified the IADL measures of sensory-motor functions slightly in Study 2 to include two different measures for eyesight, one for reading and the other for getting around. However, to ensure maximum consistency across the two studies, the variable used in this analysis was in both cases a mean score across all IADL measures.

Similar to Sugiyama and Ward Thompson's (2007b) findings, there was generally a high level of agreement on the positive ease and importance attached to projects. It is plausible that respondents listed only important personal projects and projects they felt were within their capabilities, which may be affected by the physical environment, and therefore reflected in a tendency for projects listed to have high SNE. When asked, participants could only identify a very limited number of personal projects that they felt they could no longer do. This is one limitation of asking participants to offer their own projects rather than rate hypothetical scenarios that would have improved comparability.

Related to this is the issue of the direction of causation. It may be that those older adults who have a greater quality of life are more physically able and therefore more likely to find the environment supportive than those with less mobility and subsequently a poorer quality of life. An understanding of how perceived environmental support is related to independently observed environmental conditions would therefore enhance this research.

Existing studies of the relationship between the outdoor environment, physical activity and quality of life tend to focus on fixed spatial areas around the home. The strength of the personal project approach to measure perceived environmental support is that it relates specifically to activities undertaken and the environment in which they are undertaken, regardless of spatial scale. This is an improvement on studies that may focus on environments of insignificance to certain individuals. On the other hand, a weakness in the lack of a spatial element means that comparability is harder and relationship between the perceived supportiveness and environmental conditions is not clear. Finally, if research is to inform changes to the built environment, it is important to understand how perceived environmental supportiveness as measured in this article relates to independently audited conditions (McCrea, Shyy, & Stimson, 2006) or perceptions of specific aspects of the outdoor environment, so that changes to the built environment can result in positive outcomes such as improved quality of life, especially given that concordance between independently recorded measures and self-reported perceptions of the environment has a tendency to be low (e.g., Gebel, Bauman, Sugiyama, & Owen, 2011).

Conclusions

We found a consistent, positive relationship across two separate studies between the number of personal projects older people participated in and their QoL. In addition, we found a consistent, positive relationship between supportiveness of the environment and older people's QoL for nature-related outdoor activities. In one study, environmental supportiveness across all project types was also significant for QoL. There is growing evidence that being outdoors and active in nature is important in later life; given the role of a supportive environment in linking nature-related projects to QoL as found in our studies, planning and design of the outdoor environment should include the aim of encouraging participation in nature-related activities for older adults.

The negative relationship between involvement in utilitarian projects and QoL in Study 2 suggests that the satisfaction that comes from being able to undertake necessary activities may be limited in older adults, as in other age groups, if this is not accompanied by some nature-related, social, or recreational aspect that enhances the enjoyment of the project. This finding points to the importance of the *quality* of experience in undertaking any activity, and suggests that environmental support may make a difference to the quality of the experience and thus to QoL.

The use of personal projects as a unit of analysis is valuable in assessing the person–environment fit. It has added to understanding of the relationship between the outdoor environment and behavior with regard to older people's participation in activities that are salient to them. Personal projects analysis is more common in personality studies, but, as we demonstrate here, it has the potential to be more widely used in assessing the relationship between the environment and behavior. We have demonstrated the relationship between perceived supportiveness of the environment and QoL in two elderly populations, and furthermore that this relationship might differ depending upon the type and purpose of outdoor activity being undertaken.

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